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ABSTRACT

This ERIC Digest describes the development of the 1994 National Assessment of Educational Progress for geography and the results from that examination of geographic knowledge and skills of students in grades four, eight, and twelve. The assessment format utilized multiple-choice questions and constructed-response questions. Results were reported by the achievement levels of basic, proficient, and advanced. Major conclusions include: (1) too many students in the United States do not demonstrate achievement of essential content and skills in geography; and (2) analytical thinking and writing skills are important to the study of geography for the content interpretation and processing of geographic information. Sections of the Digest include: (1) Introduction; (2) "The Framework"; (3) "Report of Student Performance"; (4) "Relationships of Home and School Experiences to Student Performance"; and (5) "Conclusions." Eight additional resources available in ERIC are cited. (EH)

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The National Assessment of Educational Progress in Geography

by Joseph P. Stoltman

The National Assessment of Educational Progress (NAEP) in Geography is a periodic survey of geographic knowledge and skills of students at grades four, eight, and twelve. The 1994 NAEP probed students' ability to recall, understand, analyze, and interpret geographic information and to apply content to complete various practical tasks. Trends in NAEP scores over a period of years will enable educators and others to evaluate whether children in the United States are developing the geography skills and knowledge essential for effective participation in the economic and political activities of the nation.

The Framework. A comprehensive framework guided the structure and content of the geography assessment. Three geography content areas served as the core organizing structure of the assessment:

- Space and Place: Knowledge of geography as it relates to particular places on Earth, to spatial patterns on Earth's surface, and to physical and human processes that shape such spatial patterns.
- Environment and Society: Knowledge of geography as it relates to the interactions between environment and society.
- Spatial Dynamics and Connections: Knowledge of geography as it relates to spatial connections among people, places, and regions.

The framework required the assessment to include both multiple-choice questions and constructed-response questions. The constructed-response questions challenged the students to write answers ranging in length from a few words or sentences to as much as several paragraphs. The emphasis within both the multiple-choice and constructed-response items was on higher-order thinking. The recall of information was, for the most part, subsumed by questions that required respondents to use facts to carry out higher-order cognitive operations. Thus, the assessment emphasized the use of knowledge, not the mere recall of information.

Report of Student Performance. Results for each grade — fourth, eighth, and twelfth — are reported according to three achievement levels: *Basic, Proficient,* and *Advanced.* These achievement levels are based on expert judgments about what students should know and be able to do in geography at the three grade levels assessed. The *Basic* level denotes partial mastery of knowledge and skills that are fundamental for satisfactory work at each grade. A score at the *Basic* level means there are additional knowledge and skills necessary for a student to perform competently in geography. The *Proficient* level represents solid academic performance and demonstrated competence over challenging subject matter. The *Advanced* level signifies superior performance, demonstrating excellence in knowing and using geography.

The *Proficient* level was reached by 19 percent of fourth graders, 24 percent of eighth graders, and 25 percent of twelfth graders. The *Advanced* level was attained by 3 percent, 4 percent and 2 percent of the students respectively, by grade. At each grade, roughly 70 percent of students were at *Basic* level or higher and approximately 30 percent were below the *Basic* level.

On sample assessment tasks, students demonstrated a range of competencies:

- At grade four, 79 percent of the students could identify the water cycle from an illustration; 70 percent could draw a generally accurate map of an island from a written description; 59 percent could use a map to explain the concentration of highways in the eastern United States; and 13 percent could describe two important effects of an oil spill in the ocean.
- At grade eight, 90 percent of students knew where to locate information in an atlas; 70 percent could understand why immigrants congregate in New York City; 48 percent could identify latitude on a polar map projection; and 36 percent could identify and explain two reasons why a particular route for a railroad would prove cheaper to construct than an alternate route.
- At grade twelve, 91 percent of students could use a map to identify an area of earthquake activity; 66 percent could construct a precipitation pie chart from tabular data; 55 percent could give a least two geographically accurate reasons why a shopping center should be placed at a given location; and 10 percent could identify Canada as the United States' largest trading partner.

There were statistically significant differences in the geography scores for major subgroups of the population. For example, at all grades white and Asian students had higher average scores than did their black and Hispanic counterparts. There was a strong relationship between differing levels of parental education and performance on the geography assessment. As a general rule, the more education students reported that their parents had received, the better the students performed on the assessment. Male students at grades four, eight, and twelve performed at a higher level than females. At all three grades, students attending non-public schools performed at a higher level than did students attending public schools.

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Relationships of Home and School Experiences to Student Performance. Students in this 1994 NAEP assessment were asked to complete questionnaires about home and school experiences related to learning geography, while teachers and school administrators completed questionnaires about their students' instructional experiences. The survey results help place assessment scores within the larger context of the community and the school. Policymakers and educational researchers may find the information useful when considering which variables are positively and negatively related to geography achievement. The data revealed the following relationships:

- Over 40 percent of the students at grades four and eight and 25 percent of the students at grade twelve reported watching four or more hours of television each day. In general, the more television students reported watching, the worse they performed on the geography assessment.
- Fifty-six percent of fourth graders, 39 percent of eighth graders, and 31 percent of twelfth graders reported discussing their studies at home daily. By contrast, 17, 21, and 24 percent of students at grades four, eight, and twelve, respectively, reported never or hardly ever discussing their studies at home. Students who reported not discussing their studies at home performed at a lower level than did students who discussed their studies on a regular basis.
- Twenty-six percent of fourth graders, 19 percent of eighth graders, and 14 percent of twelfth graders indicated that geography was their favorite subject. At all grades, students who indicated that geography was their favorite subject performed at a higher level than did those who indicated that they liked other subjects better.

Conclusions. Too many students in the United States of America do not demonstrate achievement of essential content and skills in geography. Future NAEPs will most likely be aligned with the *National Geography Standards*. Work on state-level curriculum development and assessment should be based on the national standards to enhance students' performances on the next NAEP in geography.

A second important conclusion from the 1994 NAEP in Geography is the importance of analytical thinking and writing skills. Constructed response questions on the NAEP required three thoughtful operations by the student. The first step required content interpretation of geographic information from a map or graph. This necessitated the processing of information in the form of symbols and scale. Knowledge of the interaction between environments and people represented on the map or graph led to the second step, that of recognizing a problem and making a reasoned decision about how it could be resolved. The third step was to justify the decision based on the analysis of information. Items such as these are rigorous. To answer them successfully requires regular opportunities to study and work with geographic content.

The NAEP reports and released items from the assessment are important resources to consider when planning regular classroom based assessments in geography. They will help guide teachers and students to new higher standards of achievement in geography.

References and ERIC Resources. The following list of resources includes references used to prepare this Digest. The items followed by an ED number are available in microfiche and/or paper copies from the ERIC Document Reproduction Service (EDRS). For information about prices, contact EDRS, 7420 Fullerton Road, Suite 110, Springfield, Virginia 22153-2852; telephone numbers are (703) 440-1400 and (800) 443-3742. Entries followed by an EJ number, annotated monthly in CURRENT INDEX TO JOURNALS IN EDUCATION (CIJE), are not available through EDRS. However, they can be located in the journal section of most larger libraries by using the bibliographic information provided, requested through Interlibrary Loan, or ordered from commercial reprint services.

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